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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/751,834	12/29/2000	Pamela A. Binns	H16-25537 US	9272

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SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
SHAH, NILESH R	
ART UNIT	**PAPER NUMBER**
2127	

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/751,834	BINNS ET AL.	
	Examiner	Art Unit	
	Nilesh Shah	2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 Augest 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 Augest 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/29/00, 5/13/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-30 are presented for examination.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1,5, 11, 18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent Application No. 09/751,955.

Although the conflicting claims are not identical, they are not patentably distinct from each other because both computer systems comprise substantially the same element. This application talks about the steps of determining and then assigning slack to a task scheduler. The application case (09/751,955) also teaches the use of determining the amount of slack that is associated with a scheduler. The difference between the application and this case is the claimed way the slack is allocated. The application case uses priority while this application uses a time partition. It would have been obvious to one of ordinary skill in the art that the slack of the system be allocated based on different time set in order to determine which time gets the slack first. The two systems are capable of performing the same outcome therefore, they are not patentably distinct from each other.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> i. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1- 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atlas et al ('Slack Stealing Job Admission Control) in view of Ezer et al (6,275,239) (hereinafter Ezer).

5. As per claim 1 Atlas teaches a data processing system executing tasks, a method of scheduling tasks comprising:

Start new paragraph.

6.

determining available slack (page 4 lines 19, 23-24, 36-37); and

allocating slack to tasks (page 4 lines 19, 23-24, 36-37 page 5 lines 5-11).

Atlas does not specifically teach the use of setting different time partitions

Ezer teaches the use of setting different time partitions (col. 8 line 65- col. 9 line30). It would have been obvious to one skilled in the art to combine the teachings of Ezer and Atlas to ensure different time partitions have access to slack. By being able to allocated slack to different time partitions the user can determine which tasks get the slack first, thus making the entire system more efficient.

7. As per claim 2, Atlas teaches a method wherein the tasks that are allocated slack are aperiodic, non-essential tasks (page 4 lines 19, 23-24, 36-37).

8. As per claim 3, Atlas teaches a method wherein the tasks comprise essential and non-essential tasks, and wherein the tasks that are allocated slack are from the group consisting of new non-essential tasks and enhancements to essential tasks (page 4 lines 19, 23-24, 36-37).

9. As per claim 4, Atlas teaches a method wherein in determining, both timeline slack and reclaimed slack are determined (page 4 lines 19, 23-24, 36-37, page 5 lines 13-17).

10. Claim 5 is rejected based on the same rejection for claim 1 above.

11. As per claim 6 Atlas, teaches a data processing system executing tasks, a method of scheduling tasks comprising (page 4 lines 19, 23-24, 36-37).

12. Atlas does not teach the use of collection of unscheduled execution time.

Ezer teaches collecting unscheduled execution time from at least one time partition (col. line 1-7); and allocating the unscheduled execution time to a task in another time partition (col. line 1-7).

13. Claims 7-9 are rejected based on the same rejections as stated in claim 2-4 above.

14. Claim 10 is rejected based on same rejections as stated in claim 6 above.

15. As per claim 11, Atlas teaches a system executing essential and non-essential tasks, a method of scheduling tasks comprising:

determining available slack from the group consisting of slack and reclaimed slack (page 4 lines 19, 23-24, 36-37).; pooling available slack in a common slack pool and allocating slack from the common slack pool to tasks (page 4 lines 19, 23-24, 36-37).

Ezer teaches the use of different time partitions (col. 8 line 65- col. 9 line30).

16. Claims 12 –13 are rejected based on the same rejections as stated in claim 2-3 above.

17. As per claim 14, Atlas teaches a machine-readable medium, the method comprising of determining available slack from the group consisting of slack and reclaimed slack (page 4 lines 19, 23-24, 36-37, page 5 lines 13-17);

pooling available slack in a common slack pool and allocating slack from the common slack pool to tasks (page 4 lines 19, 23-24, 36-37).
Ezer teaches the use of scheduling tasks for different time partitions (col. 8 line 65- col. 9 line30).

18. Claim 15 is rejected based on the same rejection as stated in claim 14 above.

19. Claims 16 –17 are rejected based on the same rejections as stated in claim 2-3 above.

20. Claim 18 is rejected based on the same rejection as stated in claim 14 above.

21. As per claim 19 Atlas teaches a system comprising:

a processor to execute a plurality of tasks, wherein each task of the plurality of tasks is of a task type selected from the group consisting of essential and non-essential, wherein each task of the plurality of tasks has associated with it at least one worst case execution time; and an executive in communication with the processor and controlling dispatching of tasks on the processor, wherein the executive comprises (page 4 lines 19, 23-24, 36-37, page 5 lines 13-17);

a first module that is determine available slack (page 4 lines 19, 23-24, 36-37, page 5 lines 13-17); and

a second module that is to allocate available slack to tasks in (page 4 lines 19, 23-24, 36-37, page 5 lines 13-17).

Ezer teaches the use of scheduling tasks for different time partitions (col. 8 line 65- col. 9 line30) and a processor (col. 2 lines 10-20).

22. As per claim 20, Atlas teaches a system wherein the first module is to determine available slack by determining slack from the group consisting of slack, reclaimed slack, and idle time (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

Ezer teaches the use of scheduling tasks for different time partitions (col. 8 line 65- col. 9 line30) and a processor (col. 2 lines 10-20).

23. As per claim 21, Atlas teaches a system wherein the first module is to maintain a pool of available slack (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

24. As per claim 22, Atlas teaches a system, wherein the first module is to maintain a common pool of available slack that can be used by tasks in any time partition (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

25. As per claim 23, Atlas teaches a system wherein the second module is to allocate available slack to tasks that are; non-essential (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

26. As per claim 24, Atlas teaches a system wherein the tasks are from the group consisting of new non-essential tasks and enhancements to essential tasks (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

27. As per claim 25, Atlas teaches a system, wherein the executive further comprises a third module that is to assign different priority levels to tasks (page 5 lines 18-24, lines 35-39).

28. As per claim 26, Atlas teaches a system wherein the first module is to determine available slack for tasks at each priority level (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37, page 5 lines 18-24, lines 35-39).

29. As per claim 27, Atlas teaches a system wherein the second module is to allocate available slack to tasks in order of priority (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37, page 5 lines 18-24, lines 35-39).

30. As per claim 28 Atlas and Ezer do not specifically teach a method wherein the multitasking system is a flight control system (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37). However, it would have been obvious to one skilled in the art at the time of the invention to include a flight control system in Atlas and Ezer's system because it will increase the field of use for Anderson and Atlas's system.

31. As per claim 29 Atlas teaches a system wherein the system is a real-time control system (page lines 5-8).

32. As per claim 30, Atlas teaches a system wherein the executive comprises a single set of slack variables and a single slack table (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37).

Response to Arguments

33. Applicant's remarks filed on 8/9/04 have been fully considered but they are not persuasive.

34. In the remarks applicant argued: (a) Atlas does not tech the use of time partitioning, (b) Ezer does not teach the use of slack.

35. Examiner respectfully disagrees with applicants argument: As per (a), Ezer teaches the use of setting different time partitions (col.8, line 65- col.9, line 30); (b) Atlas teaches the use of allocating slack to different tasks (page 2 lines 45-47, page 4 lines 19, 23-24, 36-37, page 5 lines 18-24, lines 35-39). Ezer also provides motivation as to why one would want to include the use of time-partitioned tasks in an invention (col. 1, line 60 – col. 2, line 7).

Conclusion

36. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nilesh Shah whose telephone number is (571)272-3771. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng An can be reached on (571)272-3756.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nilesh Shah
Examiner
Art Unit 2127

NS

November 4, 2004

MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100